

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date  
17 February 2005 (17.02.2005)

PCT

(10) International Publication Number  
**WO 2005/015278 A1**

(51) International Patent Classification<sup>7</sup>:

G02B 6/14

(21) International Application Number:

PCT/EP2003/008613

(22) International Filing Date: 4 August 2003 (04.08.2003)

(25) Filing Language:

English

(26) Publication Language:

English

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(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

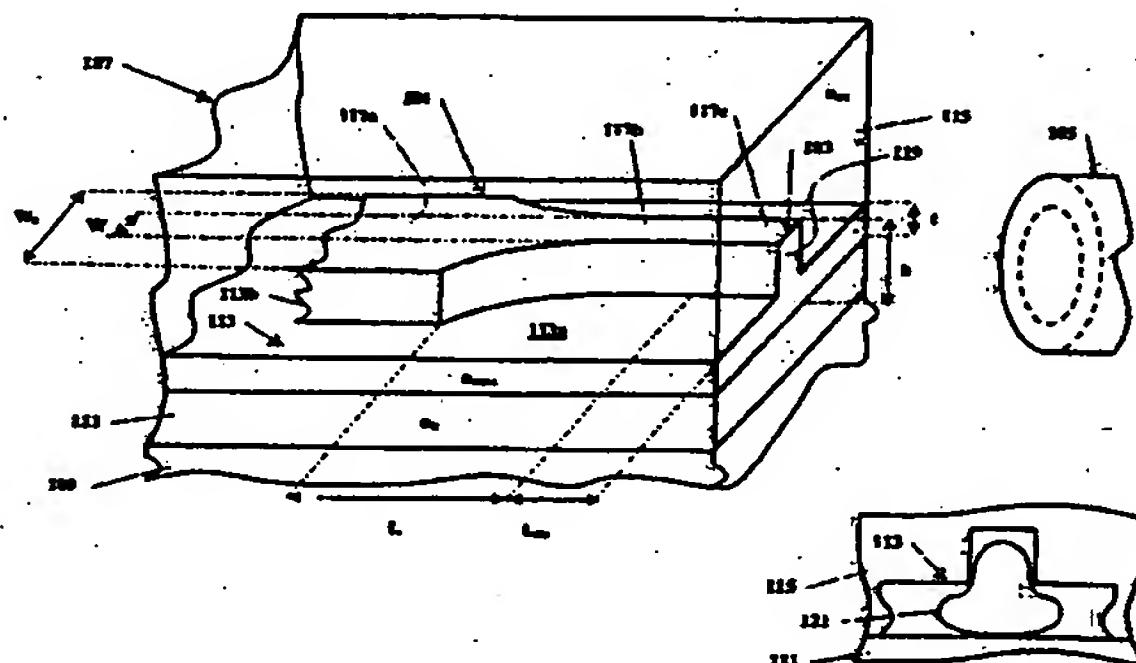
— *of inventorship (Rule 4.17(iv)) for US only*

Published:

— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: INTEGRATED OPTICAL WAVEGUIDE STRUCTURE WITH LOW COUPLING LOSSES TO AN EXTERNAL OPTICAL FIELD



WO 2005/015278 A1

(57) Abstract: An integrated optical waveguide structure comprising a waveguide core (113), for guiding an optical field, formed on a lower cladding layer (111). The waveguide core comprises a waveguide core layer (113a) substantially coextensive to the lower cladding layer and having a substantially uniform thickness (t), and a waveguide core rib (113b), of a substantially uniform height (ht), protruding from a surface of the waveguide core layer opposite to a surface thereof facing the lower cladding layer. A layout of the waveguide core rib defines a path for the guided optical field. The integrated optical waveguide structure comprises a circuit waveguide portion (117a) in which the waveguide core layer has a first width (Wo), adapted to guiding the optical field through an optical circuit, and at least one coupling waveguide portion (101) adapted to coupling the circuit waveguide portion to an external optical field. The coupling portion comprises a terminal waveguide core rib portion (117c) having a second width (W) lower than the first width and terminating in a facet (119), and a transition waveguide core rib portion (117b) optically joining to each other the circuit waveguide portion and the terminal waveguide portion; the transition waveguide core rib portion is laterally tapered, so that a width thereof decreases from the first width to the second width. The waveguide structure allows an integrated optical device designer satisfying optical circuits needs and, at the same time, ensuring a satisfactory coupling efficiency with an external field.